

# Michael Sheppard



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Photo: PTR Inc.

CEO  
at PTR Inc.

Interview with **Michael Sheppard**

**Alan Ross:** Hi, I'm Alan Ross. I'm the Managing Editor of APC Media. Today at Distributech International 2024, I'm joined by Michael Sheppard, CEO of PTR Inc., our esteemed research partner.

How did you get into this whole industry as it relates to PTR?

**Michael Sheppard:** I graduated 2008, finance degree. I had done my thesis on collateralized debt obligations at the time. If I believed what I was actually writing, then maybe I should consider, at least temporarily, some alternatives.

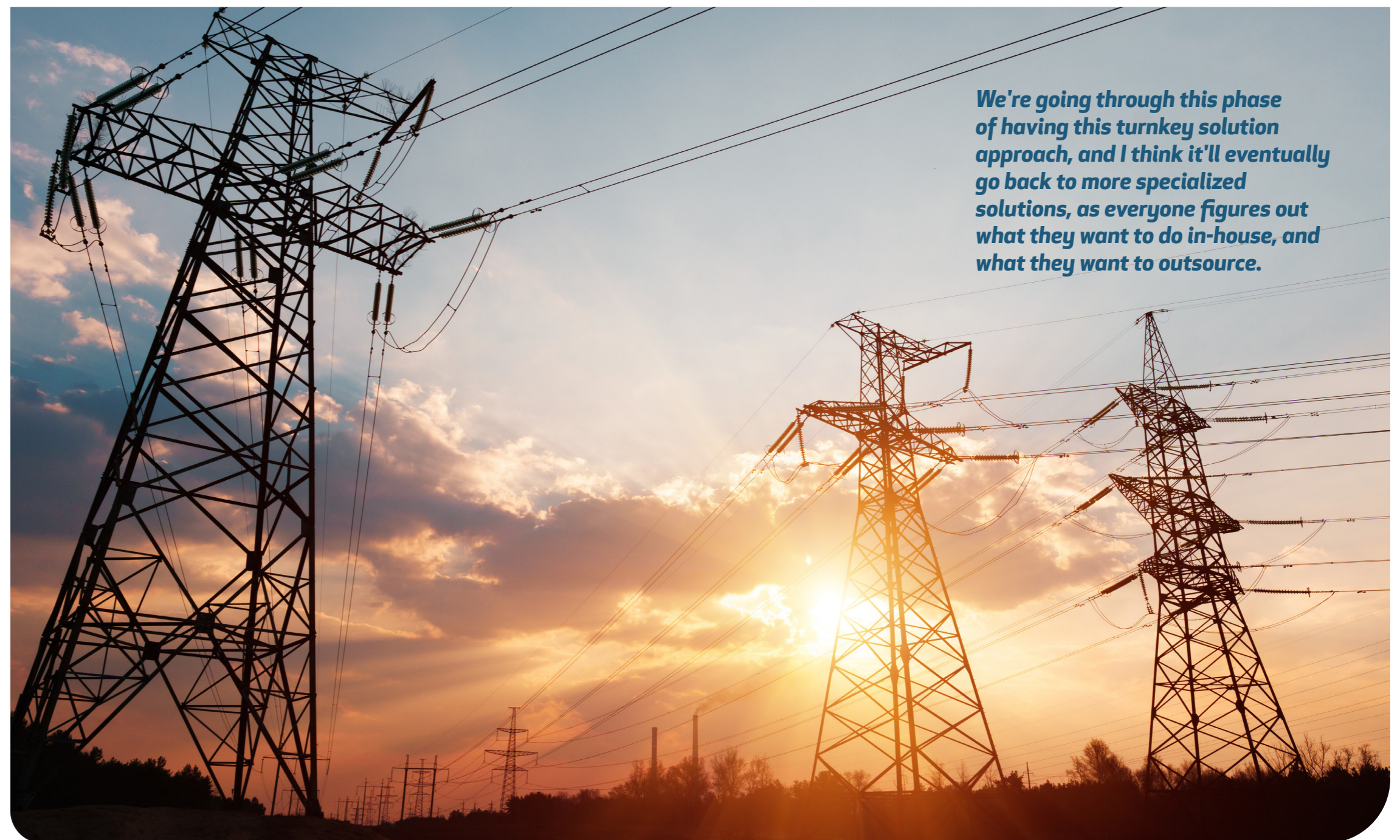
Fortunately, my father had co-founded a market research company. I thought I should use a financial analyst perspective and apply it to market research - the same core philosophy of trying to figure out what's going on and try to create models to predict the future.

I got into the company, and the company was a fast-growth company, traditionally known for semi-conductor coverage. That's where I learned how to become an analyst doing semiconductor research. Through acquisitions, the company ended up as part of IHS, which is now part of S&P Global. Throughout my journey at that organization, I got into solar photovoltaic research. That actually got me into the energy and eventually the power industry. I ended up managing a consulting group there. The request we were getting all the time was to help people figure out the power grid. Separately, we were doing consumer and industrial research. We were asked to connect these two. That was all custom, and I thought that this knowledge, the methodology requires you to invest a lot of time and effort. Every electricity network is independent and unique. Therefore, we created PTR Inc. with the goal to really understand the networks in each country around the world.

That was 2016. We're almost at our eight-year anniversary.

**AR** You've been doing research on the industry even before PTR. You've seen it like the rest of us have seen it. Static, not a lot of dynamism, decades of not changing, very closed systems we don't share with anybody. All of a sudden in the last five years, we've seen some pretty dramatic change to the point where we're at right now. In your perspective, what does that look like to where we are right now in the industry?

**MS** Even as an outside observer, you could say it's very surprising, because in my background with solar, change is constant in that industry. I am familiar with a regulatory-



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driven or incentivized environment. But in terms of established norms and traditions and what operating metrics drive these companies, that's all changing. We're having conversations with our customers and prospects about things that are still in development. For instance, supply chains around EV charging. What are the standards there? How are procurement decisions being made? These are the questions we're helping our customers answer. Though the things being sold are the same, they're being applied in new ways. It's involving new characters, like the *Googles* and *Microsofts* of the world, in an intimate way, not just on the fringe, but in the core within the networks, with all that sensing, measuring, and processing of that information, the new generative AI; it's all being applied to this legacy network.

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We're now unlocking a lot of this new potential in terms of business models and revenue streams. One of the research practices we've done for a few years at PTR is around storage. When doing storage research, I was always thinking there quite a few things you can do in ancillary services that storage can provide to the grid. Why is it only one-at-a-time thing? Why is it only you can have an agreement on one aspect? That concept around multiple revenue streams, I had first encountered, at least in the electric network side of things, that's unlocking right now, in real time.

**AR** One of the reasons storage is coming up so much is one of the big buzzwords in the industry right now. I was the President of the Electric Power Reliability

Alliance where I retired. I felt like 15 years ago, I invented the idea of *reliability* in the power industry, because we were talking about it back then. Today, the new word is *resilience*. Reliability means keeping the lights on. Resilience means turning the lights back on once they go off. And because of weather events, bad physical and cyber actors, all of the different things that are going on, resiliency has taken a front seat, and that's what utilities are looking for. How do I become resilient in the face of so many unknown factors?

**MS** Going back to these new actors that are being involved, one of the major new actors are data centers. We won't call them bad, because they provide a lot of revenue. Their philosophy about how they do business

is very iterative. You have these new players that are okay with, I won't quote directly, *the move fast and break things mentality*, which obviously goes against the electric network and how that was built.

This is where the solution providers really have to step up their game. They need to be able to provide an iterative solution to their customers while maintaining the same standards and support that they had done with the owners and operators of the grid simultaneously. That's where we're hearing stories about providing flexible solutions. It's not just about anticipating the needs, it's also about understanding what someone really means, interpreting what they're saying, even if it is not explicit. To some degree, that was always true. At the same time, there was a narrow tolerance there. Now you're deploying stuff into a job site being ready to reconfigure. That's an entirely new level of flexibility that's required from solution providers. The real change is that solutions that are being provided also have to be flexible.

**AR** You just hit another point, solutions providers. 10 years ago, but even five years ago, at an event like this you'd see somebody selling bucket trucks, big fans and

such. You don't see that anymore. You see IBM, Google, Microsoft, Dell, and a lot of different suppliers in the industry than have been there in the past. We had a lot of asset suppliers. We don't have asset suppliers as much anymore, as we have people coming in and helping utilities make a change.

**MS** It's not different than what I've seen within the industry. 10 years ago, this was happening in the industry in a big way. Living in Germany for many years, there are conferences like Hannover Messe where you see deployments of things like automation solutions into factories. It is basically replacing pure asset providers with asset plus software, plus consulting, plus analytics, plus privacy, storage, cybersecurity. You're adding to the stack of value that you're providing. Now, it's a stack of value that wasn't valued in the past. There's a big education effort required there in order to get those customers and prospects familiar with, *Hey, you do need additional solutions*. Instead of you organically building it and having to build new teams inside your own organization to facilitate this, people should take this turnkey solution.

Even though it is a well-established industry, there are all these changes taking place.

We're going through this phase of having this turnkey solution approach, and I think it'll eventually go back to more specialized solutions, as everyone figures out what they want to do in-house, and what they want to outsource. I think that's also why you're seeing a lot of providers offering all-encompassing solutions. Everything is new and moving, and people are just trying to focus on the core value proposition, or the highest value proposition, outsourcing everything else, and then figuring out where everyone's play is.

As a third party looking at the market, one of the things that I mentioned before is we're doing a lot of supply chain research on things like data centers. The challenge we have is deciding who goes in what box. Now a lot of people are doing a lot of different things. Typically, you would be able to type-cast people: this is an OEM, this is an EPC, these guys are in this area or this region of the country. Over here, they're doing something else. It's all based on capabilities, perceived value, and access to the customer. It is very dynamic right now.

**AR** This is an industry, in my opinion, that likes to be first to be second.

People want something both new and proven. No, you get new, or you get proven. I see more collaborative effort than I've ever seen, where utilities, in particular, are open to multiple parties coming in to work together to provide a solution. A little bit more hesitance to do one, because nobody wants to make a mistake to pick the wrong one. Now, if it's proven and you're the right one, they're going to be a winner. But right now, there's openness to collaboration, multiple people, even competing companies, they seem to be working together more than ever. Is that going to be the new future or what is the new future? What does it look like in the utility industry a decade from now?

**MS** Before I go forward, I'll go back a couple of years where we were all talking about the DERMS implementation and seeing utilities work with 10 different providers. The question I always ask is, how much of their network is under your coverage? They usually have one conductor or whatever. They're still in this trial mode, it satisfies the regulators. They are checking it out, doing their diligence. Moving forward, we're going to see less of that work with everybody. I don't want to think too much about consortiums and going down that road. I saw a lot of that when looking inside industries - you had to pick a camp. I don't think that would be healthy either.

I think the technology is there - the concepts of things like bi-directionality for EV charging or the home. We've had it figured out for decades.

In my mind, the bottlenecks are the business models, the public perception, and therefore the regulatory environment. These are the real challenges right now - to not trip ourselves up along the way of the technology being involved with these other hurdles.

We look at technologies like silicon carbide penetrating into the networks. In some isolated places, we see that as a potential bottleneck. But by far and away, the majority is, yeah, you could stack two of those together and still get the problem solved. Maybe it's a bit less efficient, but the point is that you move forward and you progress. If that involves increasing your computational power - you can do that with twice as many data centers right now. But how do you solve getting transmission to those? If you expand that, how do you then procure all the right equipment there? If we have procurement shortages in things like transformers right now, how are we supposed to do that in an efficient way? Are we going to, in the US, lose about half of the current market? Data centers are in the US. Is that going to maintain if we have supply shortages?



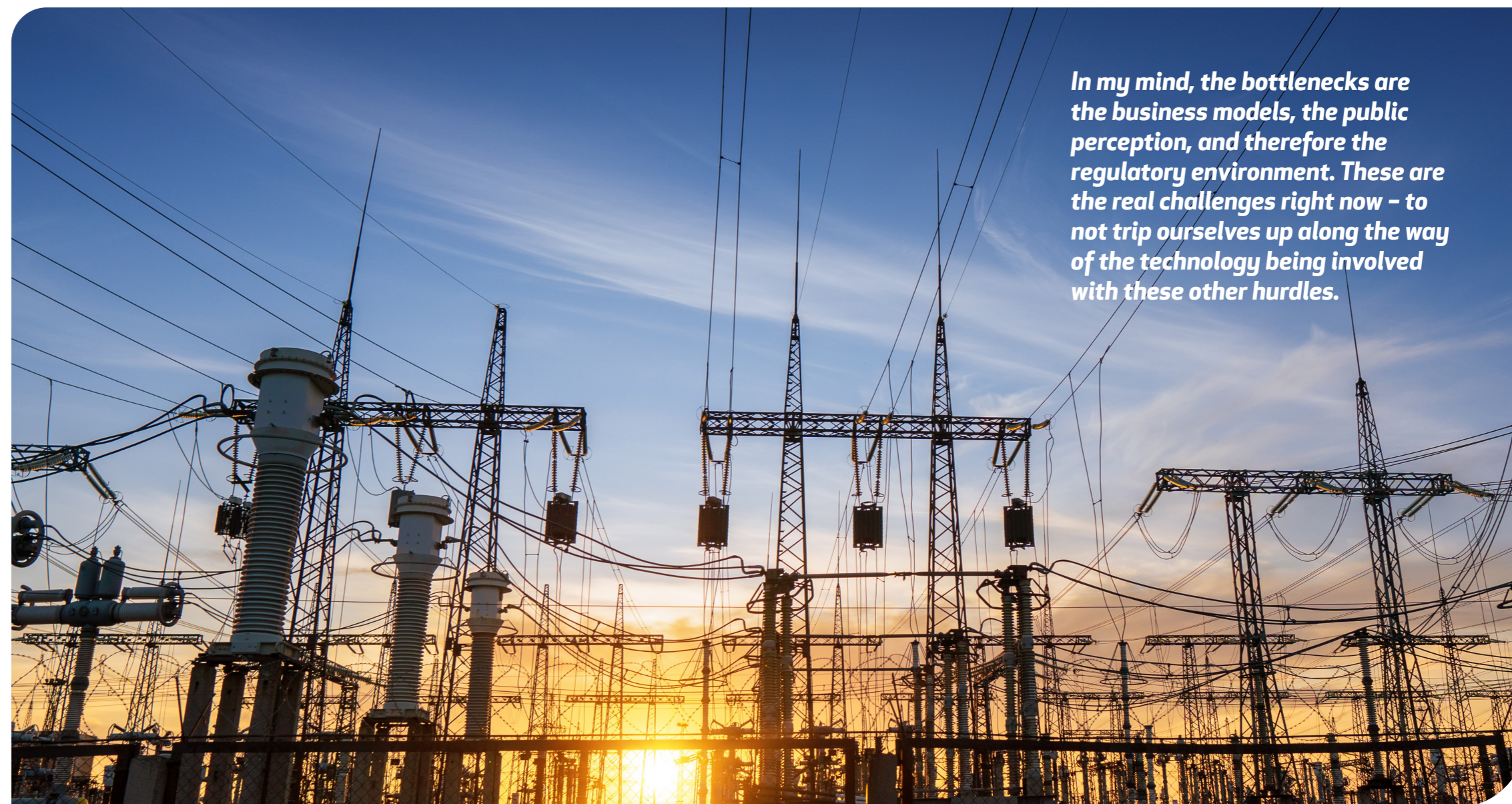
There's an interesting trend we're seeing right now: re-localization of production. We see that almost across the board with different products. We're going to go through an iteration here. It's going to be a 10, 15-year cycle. But I think that's going to improve. By doing that, that's going to improve the understanding of the true cost of things. We'll also be able to more quickly react to things, like scaling up of data centers and such. It's probably going to be five years before we can really unlock some of these things. I'm hoping in the interim, we can unlock that other bottleneck, which is around the policy side, and make sure we don't get in our own way.

**AR** Talk to me about PTR, because we do rely on you very much. It's Power Technology Research. I can vouch for the quality of the articles we get from you. You do a lot of very complex consultative type of research for people. Talk to me a little bit about that aspect of the company and why you can be trusted in that area.

**MS** Thanks, Alan. As I said, my background is finance. I'm an outlier in the company. We are a mostly electrical engineering company. We could have been an EPC, but we decided what we wanted to do was help people understand these market trends, because it was not well understood. I worked for a company of 15,000 people, and we didn't know how it worked, even though we were experts in generation and consumption of energy. I felt like it would be really great to be able to answer questions like, what is the capacity of the grid to absorb things like renewable energy on a region-by-region basis? What about new things like electric vehicles? How are we going to be able to adopt that? Are we going to be able to proactively inform the market? This includes informing policymakers about what's going on here, so that new policies are not a knee-jerk reaction to something after it happens, and there's a lot of inefficiency loss along the way. We truly see ourselves as a participant in the industry in terms of helping the broader audience understand what's going on.

If you're new to the industry, we work with and train people to get them up to speed on what's going on and transition from another sector. We really see our role in the training education of even the broader sector. That's our core mission. In terms of what we're doing that's new - we're always trying to make sure that we can quantify whatever we're doing. Now we do a lot around web scraping of maps, trying to get where the EV installations are happening, where the ports are being electrified for powering ships. We are using more and more those actual data centers

to help us do that. We're trying to make sure we stay on top of trends. We are more and more automating ourselves and trying to keep our core time focused on the actual analytics and analyzing, talking with our customers. We really want to maximize that and not get bogged down as much as possible in all the research side of what we're doing.



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**AR** It's hard to do future research on an industry that's changing so rapidly. You can do that in micro steps, but trying to do a macro step, you're too prone to being wrong because things change. I didn't know about the training and education part. We need to do more about that. We need to publicize that more as the power of what you do, because

having the research behind the training and education is really important.

**MS** It makes it more digestible. You can trust it when you know that there was a proper methodology in place to say something about the market. We use that to build rapport, and then in order to help get people up to speed

same project and the customer have different understandings. We see ourselves also as a standard, if you will.

**AR** You're becoming the Webster Dictionary of the power industry. You got a definition for everything. The other thing you mentioned, words we use

that may not have that background. In our projects, usually one of the first things we do is get a bunch of pictures. Then we create pages and pages of definitions. *This is what we define as a switch gear. These are the functions that we include.* It is, you could say, an alignment that's required. It also helps us demonstrate to our customers that we understand the complexities here. One company may call it one thing, another company may call it something different, but we need to make sure we're really defined on those definitions.

That's a big part of what we see as education, because maybe multiple stakeholders in that

differently. One person will have an acronym for something, somebody else might have a different acronym.

**MS** Especially as we're entering this data center realm and we're talking about semiconductors and things like that, it's very interesting when those acronyms collide.

**AR** I use this term a lot because I really believe in it, and I think this industry likes that. The word is trusted advisors. Utility industries want trusted advisors, and they are very loyal in that regard. PTR is a trusted advisor for us. Thank you very much, Michael.